# THE SAWFLY GENUS CRYTOCAMPUS IN BOREAL NORTH AMERICA.

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This paper is the result of my studies on the Nematid genus *Cryptocampus* (= *Enura*). The species of this genus resemble each other in the color very much. For example, the males of *bebbianæ*, *macgillivrayi*, *salicis-ovum*, *salicis-nodus* and *propinquus* cannot be separated by any reliable color character, yet they are all very distinct. This being the case, the old descriptions, which deal almost entirely with color, are of very little value. I have found the shape of the sheath and the sculpturing of the head to be constant within each species, and very valuable in separating the various species. The following is an explanation of the terms used in this paper. Many of them are used in Mr. C. L. Marlatt's most valuable work on the Nematinæ of North America [Tech. Ser. 3, U. S. Dept. Ag., 1896].

Middle fovea = the fovea between the bases of the antennæ.

Middle carina = the carina between the bases of the antennæ, below the middle fovea. This is sometimes wanting and is of little value in this genus.

Antennal foveæ = the foveæ around the bases of the antennæ.

Frontal crest = the part of the front between the bases of the antennæ, above the middle fovea. This is best seen from above.

Ocellar basin = the basin around the lower ocellus.

Interocellar furrow = the transverse furrow behind the lateral ocelli.

Lateral ocellar furrow = the longitudinal furrows which usually extend from the occiput to the antennal foveæ.

The larvæ of all the known American species make galls upon the twigs of some species of willow. It seems highly probable that each species is restricted to a certain species of *Salix*. I have found in the mouth of Boulder Cañon, Colo., bushes of *Salix luteosericea* and *Salix bebbiana* growing so closely together that the twigs were intermingled, but in no case did I find *C. macgillivrayi* in galls on *Salix bebbiana*, or *C. bebbianæ* in galls on *Salix luteosericea*.

It is at present impossible, unless the adults are reared, to determine with accuracy the galls of any species, with the exception of

the few which have been reared from willows which were specifically determined. The galls of *C. cooperæ* Ckll. and *C. brachycarpæ* Roh. look alike, but occur on different species of *Salix*.

### Cryptocampus Hartig.

*Cryptocampus* Hartig, Aderfl., p. 221 (1837).
*Enura* Newman, Ent. Mag., Vol. 4, p. 259 (1837).

Head small, seen from the front usually rectangular. Pentagonal area variable. Antennæ 9-jointed, slender, usually distinctly tapering; longer in the ♂ than in the ♀. Fore wings with three cubital cells, the second transverse cubitus wanting; stigma large; lanceolate cell petiolate. Hind wings with two discal cells which are normally equal on the outer margin; lanceolate cell of hind wings with a long petiole. Claws cleft, or with a large subapical tooth. Sheath variable. Cerci (♀) very long, slender. Procidentia (♂) variable but as a rule not very large. Hypopygium (♂) large, extending beyond the procidentia.

TABLE OF THE ADULTS.

(*C. albirictus* and *C. orbitalis* v. *niger* have been omitted.)

Females..... 1.
Males..... 13.

1. Almost entirely bright reddish-yellow (basal half of stigma pale; ocellar basin well defined)..... *macgillivrayi* Roh.
   Black, or at least the thorax almost entirely black..... 2.
2. Clypeus entirely black..... 3.
   Clypeus with at least the apical margin pale..... 7.
3. Legs below the coxæ bright reddish-yellow (upper margin of the sheath tapering; middle fovea circular, small, rather indistinct)..... *perditus* Roh.
   Legs below the coxæ and at least the femora at the base brownish..... 4.
4. Ridges around the ocellar basin wanting (the basin is indicated by a shallow depression); tegulæ sometimes pale..... 5.
   Ridges around the ocellar basin present, but rounded; tegulæ black..... 6.
5. Lateral ocellar furrow deep, distinct; antennæ black; sheath slightly emarginate above..... *niger* Prov.
   Lateral ocellar furrows almost wanting; antennæ more or less pale beneath; sheath straight above..... *salicicola* E. A. Sm.
6. Sheath distinctly emarginate above; labrum and mandibles entirely black. *maurus* Roh.
   Sheath straight above; labrum and mandibles testaceous..... *insularis* Kincaid.
7. Walls of the ocellar basin well defined, although not always strongly so..... 8.
   Walls of the ocellar basin obsolete..... 12.
8. Frontal crest unbroken (inner orbits broadly pale; venation light brown; legs entirely bright rufo-ferruginous)..... *orbitalis* Nort.
   Frontal crest distinctly broken..... 9.
9. Abdomen above entirely black; inner orbits black and usually the posterior ones; frontal crest trilobate..... *brachycarpæ* Roh.
   Abdomen at the apex above pale; inner and outer orbits pale..... 10.

10. Stigma, except extreme base, black (venation usually normal; apical antennal joint slightly shorter than the preceding one) ..... *bebbianæ* Roh.
Stigma, except apex, pale..... 11.
11 Apical antennal joint gradually tapering; ocellar basin strongly defined; lower discal cell of hind wings shorter than upper..... *cooperæ* Ckll.
Apical antennal joint obliquely truncate; ocellar basin not so strongly defined; lower discal cell of hind wings longer than upper..... *salicis-ovum* Walsh.
12. Length 3.5 mm.; clypeus slightly emarginate..... *parvus* Roh.
Length over 4 mm.; clypeus rather deeply emarginate..... *salicis-nodus* Walsh.
13. Clypeus entirely black..... 14.
Clypeus with at least the apical margin pale..... 15.
14. All the femora black..... *maurus* Roh.
Some of the femora pale..... *salicicola* E. A. Sm.
15. Legs below the coxæ marked with brown..... 16.
Legs below the coxæ entirely reddish-yellow (apex of hind tibiæ sometimes brownish)..... 17.
16. Stigma tapering to an acute point; clypeus narrowly notched. *insularis* Kincaid.
Stigma not tapering to an acute point; clypeus not deeply or narrowly notched. *brachycarpæ* Roh.
17. Stigma entirely dark brown..... 18.
Stigma pale at the base..... 19.
18. Lateral ocellar furrows distinct, deep; antennal foveæ large..... *propinquus* Roh.
Lateral ocellar furrows not deep or distinct; antennal foveæ not so large. *bebbianæ* Roh.
19. Flagellum black (orbits black)..... *perditus* Roh.
Flagellum pale beneath..... 20.
20. Sides of abdomen above more or less pale..... *salicis-ovum* Walsh.
Sides of the abdomen above black..... 21.
21. Flagellum entirely pale beneath..... *salicis-nodus* Walsh.
Flagellum black basally..... 22.
22. Frontal crest notched..... *macgillivrayi* Roh.
Frontal crest unbroken..... *orbitalis* Nort. ♀.

## TABLE OF GALLS.

An enlargement of the twig..... 1.
A lateral swelling on the twig..... 3.
1. Enlargement abrupt at the lower end..... *propinquus* Roh.
Enlargement not abrupt at the lower end..... 2.
2. On *Salix longifolia*..... *salicis-nodus* Walsh.
On *Salix luteosericea*..... *macgillivrayi* Roh.
3. Swelling elongate..... 4.
Swelling ovate or round..... 5.
4. On *Salix humilis*..... *orbitalis* Nort.
On *Salix bebbiana*..... *bebbianæ* Roh.
On *Salix* sp. (bark [dry] reddish)..... *propinquus* Roh.?
5. Swelling gradual..... 6.
Swelling abrupt..... 7.

6. On *Salix cordata*.....*salicis-ovum* Walsh.
   On *Salix humilis*.....*salicis-ovulum* Walsh.
7. On *Salix brachycarpa*.....*brachycarpæ* Roh.?
   On *Salix* sp.....*cooperæ* Ckll.

The galls of *parvus* Roh., *insularis* Kincaid, *niger* Prov., *albirictus* Cress., *orbitalis* var. *niger* Nort., *perditus* Roh., and *maurus* Roh., are not known. I have not seen nor have I a description of the gall of *salicicola* E. A. Sm. It occurs on *Salix alba*.

1. **Cryptocampus orbitalis (Norton).**

*Enura orbitalis* Norton, Proc. Ent. Soc. Phil., i, 1862, p. 144; Tr. Am. Ent. Soc., i, 1867, p. 79.

*Enura salicis-gemma* Walsh, Proc. Ent. Soc. Phil., vi, 1866, p. 25.

*Enura salicis-gemma* Walsh and Riley, Am. Ent., ii, p. 49, 1869.

*Enura orbitalis* Provancher, Natural Can., x, 1878, p. 51; Faun. Ent. Can. Hym., p. 183, 1883.

*Enura orbitalis* Thomas, 10th Rept. State Entomologist Ill., p. 69, 1880–1881.

*Enura orbitalis* Ashmead, Col. Biol. Assoc., p. 40, 1890.

*Cryptocampus orbitalis* Dalla Torre, Cat. Hym., i, p. 227, 1894.

*Enura orbitalis* Marlett, Tech. Sr. 3, U. S. Dept. Ag., p. 20, 1896.

*Cryptocampus orbitalis* Konow, Genera Insectorum, p. 51, 1905.

*Female.* — Length 5 mm.; length of anterior wing 5 mm. Head seen from the side narrowed toward occiput. Clypeus deeply, circularly emarginate; lobes long and rather sharp. Middle fovea subquadrate, distinct, walls somewhat sloping. Antennal foveæ distinct above the antennæ. Frontal crest prominent, unbroken. Ocellar basin not well defined, but the walls are sharp on the lower margin and about anterior ocellus. Interocellar furrow very faint; lateral ocellar furrows rather broad and shallow, hardly reaching the antennal foveæ. The head around the ocelli is rather closely, finely punctured. Fourth antennal joint a very little shorter than the third; apical joint equal in length with the preceding one. Claws deeply cleft, inner tooth shorter. Venation normal; stigma rounded on the lower margin, obliquely subtruncated at apex. Sheath broad at base, obtusely rounded at apex, the upper margin is not straight. Cerci slightly longer than the sheath above. Black: head except a large spot enclosing ocelli, pronotum, tegulæ, abdomen beneath and apical segments above, legs entirely except the bases of the coxæ sometimes, cerci *ferruginous*. The color on the legs and tegulæ is sometimes somewhat pallid. Apical joints of the antennæ brownish. Wings clear hyaline, iridescent; venation pale brown, basal part of costa and stigma subpallid.

*Male.* — I have not seen the male but it is colored like the ♀.

*Habitat.* — Conn., Ill., N. Y. (Norton); Canada (Prov.); Colorado (Ashm.).

The gall consists of a lateral enlargment of the twig and varies from 4–9 mm. in length, and 3–4 mm. in width. It is monothalamous.

Walsh's species *gemma* has the flagellum red beneath in the ♂, but otherwise agrees in color with *orbitalis*. A comparison of the types of

these two species might prove them distinct. The ♂ variety recorded by Norton (p. 49, Trans. Am. Ent. Soc., i, 1867) is probably a different species. I know of no *Cryptocampus* which is black above and pale beneath, but there are many *Pontaniæ* colored like his variety. It is quite possible that Dr. Ashmead has mistaken *bebbianæ* Roh. for *orbitalis* Nort. If such is the case *orbitalis* does not, as far as is known at present, occur in Colorado.

The above description is drawn from two females received from Dr. MacGillivray. They were collected in New York state.

2. **Cryptocampus orbitalis var. niger (Norton).**

*Enura orbitalis* Nort. var. *nigra* Norton, Trans. Am. Ent. Soc., i, 1867, p. 71.
*Cryptocampus orbitalis* var. *niger* Dalla Torre, Cat. Hym., i, 1894, p. 277.
*Cryptocampus orbitalis* var. *niger* Konow, Genera Insectorum, p. 51, 1905.

*Female.* — "A female from Labrabor has the whole head, except the mouth, black; the coxæ and femora, except at tip, black; the trochanters white" (original description).

*Habitat.* — Labrador.

This is undoubtedly a distinct species. In the black head it is like *niger* Prov., but has differently colored legs than that species.

3. **Cryptocampus cooperæ (Cockerell).**

*Enura salicis-ovum* Ckll., The Southwest, Vol. 2, 5, p. 113, 1900.
*Enura cooperæ* Ckll., Ann. and Mag., Ser. 7, Vol. vii, p. 337, April, 1901.

*Female.* — Length 5 mm.; length of anterior wing 5 mm. Head similar to *orbitalis* Nort., but not so broad at the occiput. Clypeus deeply, angularly emarginate; lobes broad, obtuse at apex. Middle fovea deep, rather elongated. Antennal foveæ circular, deep, large. Ocellar basin large, broader below, bounded by low, line-like walls. Interocellar furrow wanting; lateral ocellar furrows rather sharply defined, extending to the antennal foveæ. Frontal crest rather prominent, strongly broken in the middle by the middle fovea. Third and fourth antennal joints equal; apical joint slightly longer than the preceding one. Head around the ocelli finely punctured. Claws deeply cleft, the inner tooth much shorter, giving them the appearance of having a large middle tooth. Venation normal, except that the lower discal cell of the hind wing is shorter than the upper; stigma rounded on the lower margin, tapering to the apex. Sheath broad, very obtuse at the apex, straight on upper margin. Cerci about the same length as the sheath above. Black; head, except behind, and a large spot enclosing ocelli (this black spot almost touches the inner eye margins, and does touch the occiput), pronotum, tegulæ (the tegulæ are slightly pallid), abdomen beneath and the apical dorsal segments, legs entirely, *ferruginous*. The head and pronotum are slightly brownish. Apical antennal joints ferruginous, but not strongly so. Wings clear hyaline, iridescent, venation pale brown, costa and basal half of stigma white.

*Habitat.* — Las Vegas, N. M. (Mary Cooper).

The above description is from Professor Cockerell's type. The following is Professor Cockerell's description of the gall of this species: "Gall an oval abrupt lateral swelling on the twigs of *Salix* sp. (a species with very narrow leaves), about 10 mm. long and 7 broad, pale and roughened." The flies emerged April 5 and 9.

In color this species is much like *orbitalis* Nort. and *bebbianæ* Roh. The different emargination of the clypeus, the broken frontal crest and the pale stigma will separate it from *orbitalis*. See remarks under *bebbianæ* to separate it from that species. The gall is much like the supposed gall of *brachycarpæ* Roh., and belongs to the *ovum* group. I have collected galls at the mouth of Boulder Cañon, Colo., which look much like the galls of *cooperæ* and are probably made by this species. They were on *Salix luteosericea* Rydb., a narrow-leafed willow.

I have a dark specimen of *salicis-ovum* Walsh which I received from Dr. MacGillivray, which looks very much like *cooperæ* Ckll., but is not *cooperæ*, may be known from the dark specimens of *salicis-ovum* by the following characters: The ocellar basin more strongly defined, the almost complete absence of the interocellar furrow, while in *salicis-ovum* it is distinct but not strong; the apical joint of antennæ gradually tapering, not obliquely truncate at the apex as in *salicis-ovum;* frontal crest strongly broken; clypeus more angularly emarginate; lower discal cell of hind wings exceeded by the upper, while in *salicis-ovum* the lower is the longer; sheath more obtuse at the apex.

The gall of *cooperæ* may be known from the gall of *salicis-ovum* by its more abrupt form, *salicis-ovum* being somewhat sloping.

4. **Cryptocampus salicis-ovum (Walsh).**

*Enura salicis-ovum* Walsh, Proc. Ent. Soc. Phil., vi, p. 252, 1866.
*Enura perturbans* Walsh, Proc. Ent. Soc. Phil., vi, p. 254, 1866.
*Enura salicis-ovum* Nort., Tr. Am. Ent. Soc., i, 1867, p. 50.
*Enura perturbans* Nort., loc. cit., p. 53.
*Enura salicis-ovum* Walsh & Riley, Am. Ent., ii, 1869, p. 49.
*Enura salicis-ovum* Thomas, 10th Rept., State Entomologist Ill., p. 69.
*Enura ovum* Ashm., Colo., Biol. Assoc., p. 40, 1890.
*Enura salicis-ovum* Ckll., Tr. Am. Ent. Soc., xx, p. 345, 1893.
*Enura ovum* Beutenmüller, Bull. Am. Mus. Nat. Hist., iv, Art. xv, p. 267; Am. Mus. Jn., iv, No. 4, Oct., 1904, p. 24.
*Cryptocampus salicis-ovum* Dalla Torre, Cat. Hym., i, p. 278, 1894.
*Cryptocampus pertubans* Dalla Torre, loc. cit., p. 278.
*Enura salicis-ovum* Marlatt, Tech. Ser. 3, U. S. Dept. Ag., p. 20, 1896.
*Cryptocampus salicis-ovum* Konow, Genera Insectorum, p. 51, 1905.
*Enura S. ovum* Weldon, Can. Ent., Sept., 1907, pp. 299 and 302.

*Female.* — Length 5 mm. ; length of anterior wing 5.5 mm. Head similar to that of *orbitalis* Nort. Clypeus deeply, circularly emarginate ; lobes broad, obtuse, middle fovea deep, strong, more sharply defined toward the clypeus. Antennal foveæ not large, or strongly defined. Ocellar basin not very strongly defined. Interocellar furrow broad, but visible ; lateral ocellar furrows broad and not quite reaching the antennal foveæ. Third and fourth antennal equal or the third slightly longer ; apical antennal joint longer than the preceding, not gradually tapering, but near the apex obliquely truncated. Head closely, finely punctured, subopaque. Thorax above subopaque ; the middle furrow of the middle lobe of mesonotum more distinct than usual, claws deeply cleft, inner tooth shorter than the outer, but not as short as the inner tooth of *cooperæ*. Venation of anterior wings normal ; lower discal cell of hind wings large and exceeding the upper on the outer margin ; stigma rounded on the lower margin, tapering to apex, broadest in the middle. Sheath broad at base, straight on upper margin, obtuse at the apex. Cerci equal to or longer than the upper margin of the sheath. Black : head, except a black spot enclosing antennæ and behind, prothorax, tegulæ, legs entirely, abdomen except at base above and sheath, *ferruginous* Wings, clear hyaline, iridescent, venation pale brown, costa and stigma pale yellowish, apical part of the stigma dusky.

*Habitat.* — Ill. (Cresson and Norton, also Walsh), New York, near New York City (Beutenmüller), Colorado (Ashm.).

The above description was drawn from a ♀ received from Dr. Macgillivray. It is much darker than usual, being about the color of the male. The following notes taken from Walsh's original description give the normal color of the female : Shining reddish ferruginous ; a spot enclosing ocelli, middle part of mesonotum, base of scutellum, metanotum, basal plates and part of the first dorsal abdominal segment *black*. Antennæ bright ferruginous beneath, black at the base above, brownish toward apex. I have not seen the male of this species, but a good color description may be found in Norton's catalogue.

The gall is an oval or roundish, sessile, lateral swelling, rising gradually from the twig, not abrupt as in *cooperæ*, etc. ; in color "pale opaque brown" (Walsh), with irregular cracks and scales. Length 8–13 mm. Found on *Salix cordata* Muhl. Norton states that certain twigs will be badly infested, having galls every few inches or half inches even, while other twigs will be entirely free.

"Larva pale yellowish, with a pale fuscous head and dark eye spots ; removed from the gall it uses its legs freely" (Norton).

Here again I must doubt Dr. Ashmead's record from Colorado. It was probably founded on the gall as was Professor Cockerell's. In working over the collection of the Colorado Agricultural College I found no specimens of *salicis-ovum*, and feel sure that Mr. Weldon did not have the galls of *salicis-ovum*, but rather *cooperæ* or a closely allied

species, as the galls are not those of *salicis-ovum*, but of the *cooperæ* group.

5. **Cryptocampus salicis-ovulum (Walsh).**

*Enura salicis-ovulum* Walsh, Proc. Ent. Soc. Phil., vi, 1866, p. 253 [original description in which only the gall and larva are described].

*Cryptocampus salicis-ovulum* Dalla Torre, Cat. Hym., i, 1894, p. 278.

This species was described from the gall and larva. The gall is like *ovum* Walsh, but is found on *Salix humilis*. The larvæ differ in color from those of *s.-ovum*.

This may be a distinct species, but it is quite probable that it is merely *s.-ovum*. Till it is bred and the adult compared it will stand as a hindrance to workers. I do not think, however, it should be entirely overlooked, as some workers have been inclined to do.

6. **Cryptocampus albirictus (Cresson).**

*Enura albiricta* Cresson, Trans. Am. Ent. Soc., viii, p. 4, 1880.

*Enura albiricta* MacG., Can. Ent., Vol. xxv, No. 10, Oct., 1893, p. 237.

*Cryptocampus albirictus* Dalla Torre, Cat. Hym., Vol. i, 1894, p. 274.

*Enura albiricta* Marl., Tech. Ser. 3, U. S. Dept. Ag., p. 20, 1906.

*Female.*— "Shining black; head broad, posterior orbits dull testaceous; spot beneath eyes, clypeus, labrum, and mandibles, except tips, pale testaceous; wings hyaline, iridescent, base of stigma pale; tegulæ and legs pale testaceous, middle of femora more or less, tips of posterior tibiæ and tarsi except base, blackish. Length .15 inch" (4 mm.). Original description.

*Habitat.* — Nevada (Morrison); Washington (Kincaid).

I have not seen the above species. There is a specimen in the Colorado Agricultural College collection which was labeled *albiricta* with a query. It has the posterior orbits black, no pale spot beneath the eyes; base of stigma black, subopaque; length 5 mm. It is probably a good species. It was collected in Larimer Co., Colo., July 2, 1896, by Prof. C. P. Gillette.

7. **Cryptocampus insularis (Kincaid).**

*Enura insularis* Kincaid, Proc. Wash. Ent. Soc., 1904, p. 352.

*Cryptocampus insularis* Konow, Genera Insectorum, 1905, p. 51.

"*Female.* — Length 4.5 to 5 mm.; slender, shining; clypeus very deeply and narrowly emarginate; ridges about ocellar area distinctly raised, but rounded; frontal crest broad, rounded, with a narrow notch in the middle; antennal fovea" (middle fovea) "small, circular, moderately excavated; antennæ short, slender, third and fourth joints subequal; outer veins of discal cells in hind wings interstitial; stigma rounded at base, tapering to an acute point; tarsal claws slender, subequal; sheath stout at base, rather sharply rounded at apex. Color black; labrum, base of mandibles, tips of coxæ, trochanters, tips of femora, tibiæ except apices of posterior pair, and anterior and middle tarsi, testaceous.

"*Male.* — Length 4.0; resembles female in general structural characters; antennæ longer, stouter at base, tapering sharply; procidentia well developed, projecting, rounded at the apex; hypopygium sharply rounded at tip. Color black; flagellum of antennæ, labrum, tip of clypeus, base of mandibles, spot beneath eyes extending upwards on inner orbits, testaceous; legs colored as in the female.

"Twelve females and two males, Popof Island, July 9–15.

"Type no. 5301 U. S. National Museum.

"Swept from willow bushes.

"Allied to *Enura salicicola* Smith, but in that species the ridges about the ocellar area are obsolete, the frontal crest is broad and flat and the sheath is broadly rounded at the apex. In both sexes of *Enura salicicola* the antennæ are more or less pallid, while in *Enura insularis* this is true only of the males" (original description).

I have not seen this species, but it should be easily recognized by the above description.

8. **Cryptocampus salicis-nodus (Walsh).**

*Enura salicis-nodus* Walsh, Proc. Ent. Soc. Phil., vi, 1866, p. 253.

*Enura salicis-nodus* Nort., Trans. Am. Ent. Soc., i, 1867, p. 52; Trans. Am. Ent. Soc., ii, 1869, p. 368 (Cat., p. 222).

*Cryptocampus salicis-nodus* D. T., Cat. Hym., i, 1894, p. 278.

*Enura salicis-nodus* Marl., Tech. Sr. 3, U. S. Dept. Agric., p. 20, 1896.

*? Enura salicis-nodus* Ckll., Ann. and Mag. Nat. Hist., viii, April, p. 336. [Records gall from Las Vegas, N. M. This is perhaps *propinquus* Roh.]

*Cryptocampus nodus* Knw., Genera Insectorum, p. 51. 1905 [in a list of species].

*Enura salicis-nodus* Weldon, Can. Ent., xxxix, Sept., 1907, p. 296. [Gives a description of *macgillivrayi* Roh. under this name.]

*Enura s. nodus* Jarvis, 38th Annual Rept. of Ent. Soc. of Ontario, 1907, p. 89. [Records the gall from Guelph, Ontario.]

*Female.* — Length 5 mm.; length of anterior wing 5 mm. Head seen from the side not quickly narrowed toward the top, evenly rounded. Clypeus shallowly, circularly emarginate; lobes broad, obtuse. Antennal foveæ wider below the antennæ, distinct, rather large. Middle foveæ, large, shallow, obtusely pointed toward clypeus, open above. Ocellar basin almost wanting, indicated only by five raised lines. Interocellar furrow broad, not very distinct; lateral ocellar furrow almost wanting, not as plain as the interocellar furrow. Frontal crest not very strong, notched in the middle. Third and fourth antennal joints equal; apical joint equal to or slightly longer than the preceding one, tapering to apex. Ocellar region of the head rather strongly rugose. Middle lobe of mesonotum finely punctured, the middle furrow quite distinct. Mesopleuræ highly polished. Claws deeply cleft, teeth subequal. Venation normal. Sheath broad, straight on the upper margin, obliquely, roundly truncate at the apex. Cerci not extending beyond sheath. Black: head, except a large spot enclosing ocelli (this spot sometimes extends from the antennæ to the occiput) and behind, pronotum, tegulæ, entire legs, ventral part and apical dorsal segments of abdomen, sheath except apex, base of cerci (the abdomen is sometimes entirely rufo-ferruginous),

bright *rufo-ferruginous*. Antennæ rufous beneath. Wings hyaline (but not clear), strongly iridescent; venation pale brown, base of stigma and costa pallid to pale yellowish.

*Male.* — In general the male agrees with the female. The ocellar basin is indicated by a shallow depression around the anterior ocellus. There is also a depression between the lateral ocelli. The apical antennal joint is shorter than the preceding one. The hypopygium is long, extending beyond the apex of the abdomen and is rather sharp at the apex. The antennæ are largely rufo-ferruginous. The stigma is paler brown than in the female.

*Habitat.* — Ill., N. Y. (Norton); Canada (Jarvis).

The above description was drawn up from a ♂ and ♀ received from the U. S. National Museum.

"The gall is found on *S. longifolia*. A mere gradual enlargement of the twig, from one fourth more than its normal diameter up to twice its normal diameter, almost always without any roughness on the external bark; general color that of the twig.

"*Larva.* — August 23 the larva is 20-footed. Color pale greenish-white, with the mouth dark and the usual eye spots. Length about 0.15 inch" (4 mm.). [Walsh through Norton.]

The bright livery of this species should help in its determination.

9. **Cryptocampus macgillivrayi, new species.**

*Enura salicis-nodus* Weldon, Can. Ent., xxxix, Sept., 1907, p. 286.

*Female.* — Length 6 mm.; length of anterior wing 6 mm. Head seen from the side narrowed toward occiput. Clypeus shallowly, circularly emarginate; lobes broad, obtusely rounded. Antennal foveæ large below the antennæ, middle fovea elongate, deep, open at the top. Ocellar basin shallow, large, walls sharply raised. A line-like furrow from lower ocellus to frontal crest. Frontal crest rather strong, slightly broken in the middle. Interocellar furrow wanting; lateral ocellar furrow indicated by a broad, elongate fovea. Third antennal joint slightly longer than the fourth, apical joint tapering, a little longer than the preceding joint. Ocellar area finely granular. Middle lobe of mesonotum finely denticulate, middle furrow strong for anterior half. Mesopleuræ highly polished. Claws deeply cleft, inner tooth much shorter than outer so as to give the appearance of having a large inner tooth. Venation normal or the lower discal cell of hind wings is large and extends beyond the upper. Stigma elongate, rounded on the lower margin, tapering usually to an acute tip, although it is sometimes very slightly truncated. Sheath not very broad, truncated at apex, sides subparallel. Cerci as long as or longer than the sheath. Bright rufo-ferruginous; basal two thirds of the antennæ, small spot about ocelli, spot on middle lobe of mesonotum, spot on lateral lobes of mesonotum sometimes, apex of scutellum, metanotum, margins of basal plates and apex of the sheath, *black*. Wings hyaline, iridescent; venation pale brown, costa and basal two thirds of stigma white.

*Male.* — Length 5.5 mm.; length of anterior wing 5.5 mm. Head seen from above quadrate, seen from the side not narrowed toward occiput. Clypeus rather

deeply, subangularly emarginate; lobes broad, rounded obtusely at apex. Antennal foveæ very large, extending much above the antennæ. Middle fovea elongate, deep, open at the top. Ocellar basin not as large, and better defined than in ♀; no furrow from lower ocellus. Lateral ocellar furrow stronger in some specimens than in others. Third and fourth antennal joints equal; apical joint tapering, shorter, or occasionally as long as the preceding joint. Sculpture of head and thorax as in ♀. Inner tooth of claws shorter than in ♀. Venation as in ♀. Procidentia rounded at tip, quite prominent. Hypopygium rounded at the tip. Black: head below the antennæ, inner orbits sometimes, posterior and superior orbits broadly, pronotum, tegulæ, legs except extreme bases of coxæ, venter of abdomen (sometimes dusky basally) bright *rufo-ferruginous*. Apical three or four joints of antennæ ferruginous. Wings hyaline, iridescent; venation pale brown, basal half of stigma and basal part of costa pallid to white.

*Habitat.* — Boulder, Colorado. Many males and females bred from galls on *Salix luteosericea* Rydb. Hatching in laboratory April 12–18, 1907. Two males on foliage of *Salix luteosericea* May 12, 1907 (S. A. Rohwer). Many males bred by G. P. Weldon from galls collected near Ft. Collins, Colorado. Mr. Weldon gives his *Salix* as *S. longifolia*. According to Dr. Rydberg (Bull. 100 of Colo. Ag. Exp. Sta.) *longifolia* does not occur in Colorado, while *luteosericea* is common in northern Colorado and has been taken at Ft. Collins. It is undoubtedly *Salix luteosericea* from which Mr. Weldon collected his galls.

*Gall* a gradual enlargement of the twig, about 30 mm. long and from 7 to 10 mm. in width. Color that of the twig. Not roughened beyond the character of the dry bark. The small galls contain but one chamber while the larger ones have two larvæ, each in a separate chamber, each chamber having a separate opening. Galls may be found with three larvæ, but all those I examined had either one or two. On *Salix luteosericea* Rydb.

*Larva*, about time of maturity, about 5 mm. long, of a creamy white color, with a black or dark head.

*Pupa* a few days before the adult emerges is about 5 mm. long (Mr. Weldon found some which were 6 mm.). For some time after the larval stage the pupa is the same color as the larva, but as the time of hatching approaches it becomes darker. The length of the pupal stage is rather short, in some cases being about two weeks.

In the laboratory the males appeared about the same time as the females, but in the field I found no females until after the males had been out two or three days. However, they may both emerge about the same time, as it is quite possible that I might overlook the female.

Mr. G. P. Weldon recorded a Chalcid and Ichneumonid parasite of this species, but gave no specific determination for either. My friend, Mr. G. M. Hite, had a small Chalcid from the gall of this species this spring. Mr. J. C. Crawford, of the U. S. National Museum, says it is perhaps a new species of the genus *Eurytoma*.

The male is so very much darker and differs in the emargination of the clypeus, and the larger antennal foveæ, also the shorter inner tooth of the claws, that if they had not been reared from the same gall I should hesitate to call them the same. This is a good example of dimorphism of which we have so many examples in sawflies.

At first I took this for *C. s.-nodus* Walsh, but it may be separated from that species by the following characters: ♀, the much lighter color, the thorax being almost entirely rufo-ferruginous; the middle fovea narrower and deeper; the antennal joints are longer; the sheath is more sharply truncate; the ocellar basin is more sharply defined; the inner tooth of the claws is shorter; the stigma is more elongate. ♂, the antennal foveæ much larger; the ocellar basin much better defined; the head relatively larger; the antennæ longer, the joints being much longer; the apical antennal joint about the same length as or longer than the preceding one, etc.

I take great pleasure in naming this after Dr. A. D. MacGillivray, who first told me it was a new species.

Type in the collection of the author.

10. **Cryptocampus bebbianæ, new species.**

*Female.* — Length 6 mm.; length of anterior wing 6 mm. Head not so strongly narrowed toward the occiput as in *C. orbitalis* Nort. Clypeus subangularly, rather shallowly emarginate; lobes broad, triangular, obtuse at apex. Antennal foveæ large, extending both above and below the antennæ. Middle carina stronger than usual. Middle fovea deep, somewhat crescent-shaped, with a short longitudinal fovea in the center, which extends to the frontal crest which is broken by it. Ocellar basin seldom complete, bounded by line-like ridges which are always present on the lower part, and sometimes rather strong; these ridges run to the frontal crest and form it. Interocellar furrow present and usually rather strong, slightly behind the ocelli; lateral ocellar furrows distinct, usually running to the antennal foveæ. Third and fourth antennal joints equal; apical joint slightly longer than the preceding, scarcely tapering, obtusely rounded at the apex. Head around the ocelli finely granular. Middle lobe of mesonotum closely punctured, without — or it is only slightly visible — a middle furrow. Mesopleuræ highly polished. Claws deeply cleft, inner tooth much shorter than the outer. Venation normal or the lower discal cell of hind wings is a little shorter than the upper. Stigma rounded on the lower margin, broadest near base and gently tapering to the apex. Sheath rather broad, obtusely rounded at the apex, straight on the upper margin or slightly emarginate. Cerci tapering, as

long or slightly longer than the sheath above. Black: face below the antennæ, clypeus, labrum, mandibles (apex black), narrow inner orbits, posterior and superior orbits broadly (the lower posterior orbit is sometimes black), posterior angles of pronotum, tegulæ, legs (posterior tarsi dusky), abdomen except a broad dorsal band and apex of the sheath, *ferruginous*. Palpi brownish. Apical joints of antennæ beneath sometimes slightly yellowish. Wings slightly dusky hyaline, iridescent; venation brown, costa and base of stigma subpallid.

*Male.* – Length 5 mm.; length of anterior wing 5.25 mm. Structurally the male is much like the female. The clypeus is sometimes more shallowly emarginate. The frontal crest is hardly broken. The middle fovea is rather shallow and elongate. The furrows and ocellar basin are usually more sharply defined. The orbits are usually black, but sometimes they are ferruginous. The antennal joints are longer; the apical joint is distinctly longer than the preceding one. The apex of the posterior tibæ and their tarsi are black. The abdomen is either entirely black, or only the apical part of the venter is ferruginous. The antennæ are ferruginous beneath. Procidentia broad, rather short, truncate. Hypopygium slightly exceeding the abdomen, rounded at apex. Stigma and costa black.

*Habitat.* — Boulder, Colorado (S. A. Rohwer). Many males and females bred from galls made on *Salix bebbiana* (*?*). Hatching April 8–18, 1907.

*Gall* an abrupt elongate swelling on the twigs of *Salix bebbianæ ?* Color that of the twig; when green usually smooth, but in drying thrown into shallow, broad wrinkles. It is always monothalamous. Sometimes galls are made on each side of a twig directly opposite, but usually they are made at intervals of two to three centimeters on opposite sides of the twig. In one case a gall on one side of the twig, directly opposite another gall which was matured, was stunted, giving the mature gall the appearance of an abrupt enlargement of the twig at the base, gradually tapering at the apex. When the egg is laid on a very small twig, as it was in one case noticed, the gall is higher, shorter, broader and subovate. The measurements of this gall are as follows: length 11 mm.; breadth 9 mm.; height 8.5 mm. Disregarding the gall just measured, the length varies from 18 to 35 mm., the height at base from 8 to 11 mm., the height at apex from 4 to 6 mm., the width at base from 7 to 12 mm., the width at apex from 3 to 7 mm. The larva works downward, the base of the gall being the largest. In the largest part of the gall where the pupal stage is passed, the chamber is larger.

The *larva* is about 5 mm. long, creamy-white, with a dark brown head. I am not sure that the larva makes the hole through which the adult emerges in this species as it does in *macgillivrayi*, but think that it does not. The hole is on the side of the gall a little way above the base.

The only parasite raised from this species was *Ichneutes fulvipes* Cress., determined by Mr. C. T. Brues.

Thanks are due to Dr. A. D. MacGillivray for telling me this was a new species. I had considered it to be *orbitalis* Nort., to which it is closely related, but it may be separated from this species by the following comparison :

| *C. orbitalis* Nort. ♀. | *C. bebbianæ* n. sp. ♀. |
|---|---|
| 1. Clypeus deeply emarginate; lobes rather narrow. | 1. Clypeus shallowly emarginate; lobes broad, obtusely rounded at apex. |
| 2. Middle carina low, short. | 2. Middle carina high, sharp, longer. |
| 3. Middle fovea large, subquadrate. | 3. Middle fovea smaller, somewhat crescent-shaped. |
| 4. Frontal crest prominent, rather broadly notched in middle. | 4. Frontal crest not so prominent, very slightly broken. |
| 5. Stigma not very broad at the base. | 5. Stigma distinctly broader at the base. |
| 6. Venation pale brown. | 6. Venation brown. |
| 7. Orbits broadly ferruginous. | 7. Orbits not nearly so broadly ferruginous, inner orbits sometimes black. |

| *C. orbitalis* Nort. ♂. | *C. bebbianæ* n. sp. ♂. |
|---|---|
| 1. Antennæ not reaching beyond the basal plates; apical joint shorter than the preceding one. | 1. Antennæ reaching beyond basal plates; apical joint longer than the preceding one. |
| 2. Middle carina broad and low. | 2. Middle carina more prominent. |
| 3. Interocellar furrow faint. | 3. Interocellar furrow much stronger. |
| 4. Orbits ferruginous. | 4. Orbits almost entirely black. |
| 5. Stigma white at base. | 5. Stigma black. |

Type in the author's collection.

11. **Cryptocampus salicicola** (**E. A. Smith**).

*Enura salicicola* E. A. Sm., N. Am. Ent., i, 6, 1879, pp. 41 and 42.

*Enura salicicola* Cress., Trans. Am. Ent. Soc., viii, 1880, p. 37.

*Enura salicicola* Thomas, 10th Rept. of State Entomologist Ill., 1880–1881, p. 69.

*Cryptocampus salicicola* Dalla Torre, Cat. Hym., i, p. 278, 1894.

*Enura salicicola* Marlett, Tech. Ser. 3, U. S. Dept. Ag., p. 20, 1896.

*Cryptocampus salicicola* Konow, Genera Insectorum, 1905, p. 51.

*Female.* — Length 5–7 mm. Head seen from the side not abruptly narrowed above, evenly rounded in front. Clypeus deeply, circularly emarginate; lobes narrow, pointed. Middle carina not noticeable. Middle fovea very shallow, elongate, open at the top. Antennal foveæ not at all strong, almost wanting. Ocellar basin very small and shallow, sometimes hardly present. Frontal crest low, unbroken. Interocellar furrow faint; lateral ocellar furrows narrow, deep, distinct, visible from near occiput to antennal foveæ. Antennæ rather slender; third joint slightly exceeding the fourth; apical joint tapering, as long as or slightly longer than the preceding one. Head and thorax finely punctured. Mesopleuræ highly polished, very finely denticulated. Claws minutely cleft. Venation normal; stigma evenly rounded on the lower margin; if anywhere it is broader at the base. Sheath not very broad, straight above, rounded at apex, almost parallel-sided; hairs rather long. Cerci long, tapering. Black: labrum, mandibles, tegulæ; angles of pronotum and antennæ *brownish*. Legs below middle of femora and the trochanters somewhat, brownish-ferruginous. Wings dusky hyaline; venation light brown, base of stigma pale.

*Male.* — I have not seen the male but Smith described it as follows: "Smaller; head with eyes larger; abdomen nearly black; posterior legs with the femora testaceous throughout, tarsi darker than in the ♀; wings with veins more deeply marked, as also the stigma. Average length 6 mm."

*Habitat.* — Peoria, Ill. (E. A. Smith).

I regret I am unable to get the original description as it contains a description of the gall and larva. The gall is on *Salix alba.** *Eurytoma studiosa* Say is parasitic on this species.

The above description of the female was drawn up from two specimens received from the U. S. National Museum. They are darker in parts than Smith's specimens but are undoubtedly the same. She describes the legs as follows: "Coxæ, trochanters and basal half of femora testaceous, the remaining portions much paler."

12. **Cryptocampus niger (Provancher).**

*Enura nigra* Prov., Addit. Faun. Can. Hym., p. 346, 1888.

*Cryptocampus niger* Dalla Torre, Cat. Hym., i, p. 277, 1889.

*Enura nigra* Marl., Tech. Ser. 3, U. S. Dept. Ag., p. 20.

*Cryptocampus niger* Knw., Genera Insectorum, p. 51, 1905.

*Female.* — Length 4.5 mm.; length of anterior wing 4.5 mm. Head narrow, not strongly rounded out in front. Clypeus rather narrowly, subangularly emarginate; lobes broad, rounded at the apex. Superclypeal area on each side depressed Antennal foveæ inconspicuous. Middle fovea almost wanting, indicated by a narrow line. Ocellar basin bounded by rather low walls, the height of which seems to vary in different specimens. Frontal crest low, slightly broken in the middle. Inter-

* *Salix alba* is an introduced species. Is it possible that this may be one of the European *Cryptocampi*, or is it an American form that has taken to this introduced willow?

ocellar furrow wanting; lateral ocellar furrows narrow, deep, extending from near occiput to antennal foveæ. Third and fourth antennal joints equal. Head and dorsulum finely, closely punctured; head perhaps more closely so. Mesopleuræ not as highly polished as usual. Claws cleft, teeth subequal. Venation normal except that the lower discal cell of the hind wings exceeds the upper and in some specimens the intercostal vein is wanting; stigma gradually tapering from near base to apex. Sheath elongate, straight above, regularly rounded at the apex, hairs rather long. Cerci not as long as sheath, not tapering. Black: legs below middle of femora *brownish-ferruginous;* apices of tarsi dusky. Wings hyaline, iridescent; venation light brown, costa and basal half of stigma pallid.

*Male.* — Unknown to me.

*Habitat.* — Canada (Prov.); Ithaca, N. Y.

The above description was drawn up from two females received from Dr. A. D. MacGillivray.

*C. niger* resembles *salicicola* E. A. Sm. but is quite distinct.

13. **Cryptocampus brachycarpæ (Rohwer).**

*Enura brachycarpæ* Roh., Can. Ent., xl, No. 6, June, 1908, p. 176.

*Female.* — Length 5–5.5 mm.; length of the anterior wing about 5.5 mm. Head seen from the side not abruptly narrowed toward occiput, evenly rounded in front. Clypeus rather deeply, subangularly emarginate; lobes broad, rounded at apex. Antennal foveæ large, broader below antennæ, middle fovea deep, elongate, open at the top. Ocellar basin bounded by sharply raised walls, the lower of which is the higher. Frontal crest rather strong, with three lobes Interocellar furrow present, not very strong; lateral ocellar furrows broad, but still sharply defined, extending from occiput to antennal foveæ. Head rather sparsely punctured. Furrow of middle lobe of mesonotum distinct but not extending more than half its length. Third and fourth antennal joints equal; apical joint not strongly tapering, equal in length to the preceding one. Mesopleuræ shining. Claws deeply cleft, the inner tooth the shorter. Venation normal. Stigma rounded on lower margin, broadest a little basad to middle. Sheath rather broad, straight on upper margin, rounded at apex, hairs dense and long. Cerci not as long as the sheath above not strongly tapering. Black: lower margin of clypeus, labrum, mandibles, except tips, which are piceous, tegulæ, extreme angles of pronotum sometimes, posterior and superior orbits sometimes, legs below coxæ, except line on femora beneath, and apices of tibiæ and tarsi sometimes, *rufo-ferruginous.* Apex of venter is in a few cases brownish. Wings hyaline, iridescent, venation brown, costa and basal third of stigma pallid.

*Male.* — In general the male is much like the female. These differences are to be noted: lateral ocellar furrows are not so strong; the apical four joints of the antennæ are *rufo-ferruginous;* the frontal crest is not trilobate but is notched; the lower discal cell of hind wings sometimes exceeds the upper; the stigma is elongate, obliquely truncate at apex; the inner tooth of claw is shorter. Procidentia rather small, rounded at apex. Hypopygium large, rounded at apex. Length 4–5 mm.

*Habitat.* — Florissant, Colo. (Roh.); Ute Creek, Costilla Co., Colo., July 7, 1907, alt. 9000 ft. (R. W. Dawson).

The supposed gall of this species is much like the gall of *C. cooperæ* Ckll. It is on *Salix brachycarpa*.

The adult is very different from *C. cooperæ*, easily distinguished by being darker, the different shaped stigma, etc. In color it is much like *C. albirictus* Cress., but is larger. There is no testaceous spot between the eyes, etc.

14. **Cryptocampus parvus (Rohwer).**

*Enura minuata* Waldon, Can. Ent., Sept., 1907, p. 302, xxxix.

*Enura parva* Roh., Can. Ent., xl, No. 6, June, 1907, p. 176.

*Female.* — Length 3.5 mm.; length of anterior wing 3.5 mm. Head seen from the side is gently rounded in front. Clypeus rather shallowly, circularly emarginate; lobes broad, subobtuse. Antennal foveæ not strong. Middle fovea rather deep, elongate. Ocellar basin wanting. Above the frontal crest there is a shallowly depressed area. Frontal crest rounded, very gently emarginate in the middle. Ocellar furrows not strongly defined, almost wanting. Third and fourth antennal joints equal; apical joint tapering, equal in length with the preceding; fourth and fifth joints with a little spine at apex above. Head and dorsulum finely, closely punctured. Claws minutely cleft; teeth equal or subequal. Venation normal. Stigma rounded on lower margin, rather acuminate. Sheath straight above, parallel-sided, rounded at the apex; hairs rather long and dense. Cerci slightly tapering, longer than the sheath above. Dark brownish-black to black; face below frontal crest, clypeus, labrum, mandibles (apices piceous), inner orbits narrowly, posterior and superior orbits broadly, angles of pronotum, tegulæ, legs entirely, abdomen except a broad brownish band above and the sheath, *reddish-yellow*. Antennæ brownish beneath. Wings hyaline, not strongly iridescent; venation pale brown, costa and stigma pallid.

*Habitat.* — Ft. Collins, Colo. (April and May).

This species should be easily recognized by its small size. It is most closely related to *s.-nodus* Walsh, but is quite distinct from that species.

15. **Cryptocampus maurus, new species.**

*Female.* — Length 4 mm.; length of anterior wing 4 mm. Head rounded, rather small. Short, robust species. Clypeus shallowly emarginate; lobes broad, rounded at apex. Antennal foveæ large, deep, broader above the antennæ. Middle fovea distinct, elongate, open above. Ocellar basin shallow, walls low, rounded. Frontal crest deeply notched. Interocellar furrow evident; lateral ocellar furrows distinct from level of ocelli to antennal foveæ. Antennæ rather short; third and fourth joints equal; apical joint slightly rounded beneath, equal in length to preceding ones. Head rather finely, closely punctured. Dorsulum shining. Claws deeply cleft, inner tooth shorter. Venation of fore wings normal; upper discal cell of hind wings small, greatly exceeded by the lower one on the outer margin. Stigma broadest at base, tapering to apex. Sheath distinctly emarginate above, broad at base, long, obliquely tapering to a rounded apex. Cerci as long as sheath above, thick for basal third, thinner the rest of the way. Black: labrum, mandibles, legs below femora (tarsi in-

fuscated), and trochanters *brownish*. Wings hyaline, somewhat iridescent; venation brown, basal half or third of stigma subpallid.

*Male.* — Length 3.75 mm.; length of anterior wing 4 mm. Robust. In general much like the female, but differs as follows: Antennæ longer; walls of ocellar basin sharply defined; interocellar furrow placed near occiput and stronger; lateral ocellar furrows distinct to occiput; head more distinctly punctured; stigma broader and rounded on the lower margin. Procidentia rather small, truncate at apex. Hypopygium obtusely rounded at apex, rather large.

*Habitat.* — A ♂ and ♀, Tolland, Colo., alt. 8889 ft., June 7, 1908 (S. A. Rohwer). Swept from *Salix* sp. A very distinct species. Type in the author's collection.

16. **Cryptocampus propinquus, new species.**

*Enura orbitalis* Ckll., The Southwest, Vol. 2, 5 March, 1900, p. 113.

*Male.* — Length 5 mm.; length of anterior wing 4.5 mm. Head seen from the side rounded in front. Clypeus very shallowly emarginate; lobes low and broad. Antennal foveæ large, deep. Middle fovea distinct, elongate, open at the top. Ocellar basin with low but sharply defined walls. Interocellar furrow distinct; lateral ocellar furrows deep, distinct from occiput to antennal foveæ. Antennæ wanting in the type. Head closely and rather coarsely granular. Dorsulum not as coarsely sculptured as head, apparently punctured; furrow of middle lobe of mesonotum distinct for half the length of the dorsulum. Claws not very deeply cleft; teeth subequal. Venation normal. Stigma a little wider at base, gently tapering to the apex. Procidentia rather broad, rounded at angles, truncate across apex. Hypopygium rather sharper at the apex than usual. Black: lower margin of clypeus, labrum, mandibles, (apices piceous), lower inner orbits, middle carina, superior and upper posterior orbits, spot on angle of pronotum, tegulæ, legs below coxæ (apex of posterior tibiæ and their tarsi infuscated), apical part of venter of abdomen, bright *reddish-yellow*. Wings hyaline, iridescent, venation brown, including the stigma.

*Habitat.* — Near Las Vegas, N. M. (Mary Cooper). "*Salix* gall 61."

*Gall* an enlargement of twig, abruptly so at base. The gall before me contained two insects and is not evenly developed on both sides. It reminds me of the abnormal gall of *C. bebbianæ* Roh. It is on *Salix* sp. (The bark when dry is brownish-red.) If this gall is an abnormal one and as a rule is an abrupt, lateral, elongate swelling, the species is most closely related to *bebbianæ* Roh., from which it may be separated by the foregoing table. If the gall is normal it is related most closely to *macgillivrayi* Roh., from which it may be known by the dark stigma, the deep lateral ocellar furrows, the more shallowly emarginated clypeus, etc.

Type in the author's collection.

17. **Cryptocampus perditus (Rohwer).**

*Enura perdita* Roh., Can. Ent.

The description of this species has been sent to the "Canadian Entomologist." The only specimen I have is a male without a head. It may be briefly characterized as follows: Black, opaque; tegulæ, extreme angles of pronotum, legs orange-color or almost that dark. Venation normal, pale brown; stigma a little paler at base, obliquely truncate at apex with the lower margin rounded. Procidentia narrow, truncate at apex; hypopygium obtuse at apex.

*Habitat.* — Delta and Ft. Collins, Colo. Type in the collection of the Colorado Agricultural College.

A very distinct species easily separated by the foregoing table.

## A SMALL COLLECTION OF ANTS FROM VICTORIA, AUSTRALIA.

By William Morton Wheeler,

Boston, Mass.

The following ants were collected by Mr. Charles F. Rawsey at Camberwell, Victoria, in a "hot, fairly dry, hilly area, with sandy (granite) soil and poor, scrubby vegetation ('box-timber')." There are no new species in the collection, but as it comprises a few hitherto unknown sexual forms, was made in a new locality, and is accompanied by some interesting notes, it is well worth recording.

### Ponerinæ.

1. **Ectatomma (Rhytidoponera) socrus Forel.**

*Worker.* — Length 11–13 mm.

Head longer than broad, somewhat broader in front than behind, with straight, subparallel sides, excised posterior margin, prominent, slightly recurved infero-posterior angles and a prominent, transverse postocular crest, obtusely angular on the sides and interrupted in the middle. Eyes large, very prominent, hemispherical, just behind the middle of the head. Mandibles flattened, with deflected, pointed tips and straight inner borders furnished with numerous teeth of different sizes and irregular distribution. Clypeus broadly rounded in front. Frontal carinæ continued back to the middle of the head. Frontal area distinct. Antennal scapes surpassing the corners of the postocular crest by about one third their length. Funicular joints slender, second joint longer than first. Pronotum behind with an indistinct protuberance on each side and an acute anteriorly directed spine on its antero-inferior corner. Promesonotal and mesoëpinotal sutures distinct but only slightly impressed. Petiole from above one and one half times as long as broad, about twice as broad through the node as through the peduncle; in profile with a powerful, downwardly-directed anteroven-